DOCUMENT RESUME

ED 075 083 PS 006 418

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TITLE Piaget's Stage IV Object Concept Error: Evidence of Forgetting or Object Conception?
INSTITUTION Houston Univ., Tex. Dept. of Psychology.
SPONS AGENCY National Inst. of Child Health and Human Development (NIH), Bethesda, Md.
PUB DATE [Apr 73]
NOTE 17p.; A shorter version of this paper was presented at the biennial meeting of the Society for Research in Child Development (Philadelphia, Pennsylvania, March 29 - April 1, 1973)
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EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Concept Formation; Data Analysis; *Error Patterns; Hypothesis Testing; *Infant Behavior; *Memory; Technical Reports; Time Factors (Learning)
IDENTIFIERS *Piaget (Jean)

ABSTRACT

Piaget explains the stage IV error as a failure to assimilate the new place of hiding rather than a forgetting of it. His hypothesis predicts that the likelihood of error should not vary with the length of the delay interval. Nine-month-old infants delayed 0, 1, 3, or 7 seconds before having the opportunity to search. Infants in all conditions, save 0-seconds, were likely to err. While Piaget's hypothesis was not supported by the results of the 0-second condition, subsequent analyses of the data provided some support for Piaget's hypothesis. (Author)

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ED 075083

Piaget's Stage IV Object Concept Error: Evidence of Forgetting or Object Conception?

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Abstract

Piaget explains the Stage IV error as a failure to assimilate the new place of hiding rather than a forgetting of it. His hypothesis predicts that the likelihood of error should not vary with the length of the delay interval. Nine-month old infants delayed 0, 1, 3, or 7 seconds before having the opportunity to search. Infants in all conditions, save 0-seconds, were likely to err. While Piaget's hypothesis was not supported by the results of the 0-second condition, subsequent analyses of the data provided some support for Piaget's hypothesis.

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The Stage IV object concept error has played a central role in Piaget's account of the way in which the child acquires knowledge of the external world through activity (1954). Infants in this stage (age about 9 mos.) are able to find an object hidden under a cover when it is hidden in one place, A, but they err by searching once again at A when they see the object hidden at a second place, B. This pheonomen, $A\overline{B}$ error, has been replicated (Appel, 1971; Evans & Gratch, 1972; Gratch & Landers, 1971; Landers, 1971), and it is important to Piaget's theory on two grounds. First, he believes the $A\overline{B}$ error provides clear evidence that the achievements of object recognition and following of object movement in earlier stages do not indicate awareness of the permanent nature of objects in space (1969). Second, he sees the phenomenon as clearly pointing out that the infant's awareness of the permanence of objects arises out of his operative schemes.

Piaget makes the second point by contrasting Stage IV to the earlier stages. Stage I and stage II infants act as if disappearing objects are "out of mind", but the stage III infant will act as if the vanishing object continues to exist if he has begun to reach for it before it disappears. However, the stage III infant's sense of the absent object is completely

confounded with the act of reaching; if the act is interrupted, the infant will cease to search for the absent object. The stage IV infant is able to keep his "eye" on the toy as he directs his attention away from it to the separate problem of removing the cover. However, the infant's sense of the permanence of the object is still tied to action. He does not represent the absent object. Rather, the screen, serving as an index of the absent object, maintains an expectant attitude often reflected in a bodily orientation like pointing. Moreover, the infant localizes and identifies things relative to himself. When he finds the toy at A and sees it disappear at B, he immediately turns to A and searches there. It is as if the infant sees "the object-I-find-at-A" being hidden, and therefore, the new place is not registered. Later in development, the infant does register the hiding of the toy at B, but there is a competition between this memory and the more potent memory of his prior action at A. Still later, the infant comes to search only on the basis of where he sees the toys hidden. Gratch and Landers (1971), in their longitudinal study, documented these shifts in orientations.

Piaget is aware that his interpretation of the $A\overline{B}$ error runs contrary to common sense and to most technical interpretations, e.g., Harris (1972). Piaget points out that the error can easily be viewed as an infantile version of "absent mindedness." That is, it can be argued that the infant in fact registers the hiding of the toy at B but forgets the new location and therefore searches at the place where he previously found it. Piaget argues that this view is unlikely because his own infants were very attentive when the object was hidden at B and yet immediately searched at A when it disappeared from view.

The present study evaluates the relative merits of the forgetting and the failure to register explanations of the $A\overline{B}$ phenomenon. First, the length of time that the object was out of sight is varied. If Piaget is correct, then the likelihood of error should not vary with the length of the delay interval whereas the forgetting explanation predicts that it should. Secondly, observations are made of when the infants turned toward A and how attentive they were. If Piaget is correct, the infants should look attentively toward A when the object disappears at B and should continue to look attentively toward A throughout the time that precedes their

removing of the cover at A. If, on the other hand, infants err because they forget, then either they should not look continuously at A or they should be inattentive before they search.

Method

Subjects

Forty-eight full term infants served as Ss. Their median age was 9 months-6 days (9-6), and the range of ages was from 7-13 to 10-16. Half of the infants were boys and half were girls. Twenty of the infants were lower-class, primarily negro, and 28 infants were middle-class, primarily white. The lower-class infants were seen during the course of their 9-month examination at a well-baby clinic. Their sessions took place at the beginning of their clinic visit. The middle-class infants were brought to the laboratory at the University.

The infants were assigned to one of four delay groups, 0, 1, 3, or 7 sec. We selected these delays in an effort to sample infants' reactions to a relatively wide range of delays, the 7 sec. condition being one which was both quite long and yet not so long as to lead infants to refuse to engage in the task. Twelve infants were in each group, and half had their first A-hiding trial on the right side and half had it on the left side. The median ages of the four groups were, respectively, 9-6, 8-28, 9-4, and 9-10. There were different numbers of boys and girls and lower-class and middle-class infants in the four delay groups. Inspection of the results indicated that sex and social class were not associated with task performance, and no attempt was made to statistically analyze the influence of these factors because sex and social class were so variously represented in the delay conditions.

Assignment of Es was not controlled. All of the authors served as Es, but K.J.A. was E for most Ss in the 3 sec. condition, and W.F.E. and N.W. were Es for most Ss in the 0, 1, and 7 sec. conditions.

Procedure and Apparatus

The Ss were seated on their mothers' laps in front of a table and across from E. Initially, each S performed two warm-up tasks. In the first, an attempt was made to assess side preferences. On each of four

trials, a different pair of identical objects was placed on a tray and slid within S's reach. (As in the prior study by Gratch & Landers, no association was found between S's preference for toy-side and their likelihood of finding a toy at A or B). In the second warm-up task, a toy was placed at the center of the tray and was partially hidden on two trials and was covered just before S grasped it on two subsequent trials.

For the experiment proper, a gray plywood tray with two wells spaced 12 inches apart was used. The tray was 36 x 12 x 2½ in., and the wells were 7 x 7 x 2 in. Two 12 x 12 in. white wash cloths served as covers. The toy usually was a gold-colored bell.

A-trials--The hiding procedure was as follows. The E brought the toy close to S. As S began to reach for it, E slowly moved the toy to the A well, directing S's reach toward that side. While S was attending to the toy in the well, E slowly covered the well with the cloth. (The B well was covered prior to this hiding procedure). After the appropriate delay period (0, 1, 3, or 7 sec.), the tray was moved within S's reach. If S found the toy, he was allowed to play with it for about 10 sec. before the next trial. If S searched at the wrong side, he was allowed to correct his error or was corrected by E. The S had to succeed on 5 consecutive A trials before the toy was hidden at B.

In the 0 sec. delay condition, the tray was moved as soon as the well was covered. In the 7 sec. delay condition, the first trial involved a 3 sec. delay, and the second trial a 5 sec. delay. If S was correct on these trials, all other trials had a 7 sec. delay.

A small number of Ss had more than 5 A trials because they either refused to search or searched at B. In the 0, 1, 3, and 7 sec. conditions, there were 2, 3, 1, and 3 Ss, respectively, who had more than 5 A trials. There was no relation between the number of A trials and success on the B trials.

B trials--All Ss had at least 5 trials at the B side. If S searched at A on any of the B trials, the tray was pulled back before S had an opportunity to search at B. The E then drew S's attention to the B well, uncovered it, and handed the toy to S. If S had not found the toy at B on the fourth and fifth trials, the B trials were continued until S found

the toy twice in succession. On these latter trials, S was permitted to correct himself.

Ratings of Ss' behavior during the delay period

The aim of the procedure was to influence the baby to be "preoccupied" with the toy at the correct position, e.g., eagerly looking and reaching toward the toy. The aim of the ratings during the delay period was to document whether the baby continued to be "preoccupied" with the toy after it was hidden. Ratings were made of two phases of the delay period, and the ratings took into account whether the infant attended to the hiding wells (attentiveness) and to which well his attention was directed (direction of gaze). One phase of the delay period was the period of time after the toy was covered and before the tray was moved within S's reach (delay). The second phase was the period that began when E moved the hiding tray and ended by S's uncovering of a hiding well (presentation). During each phase, attentiveness was rated in terms of a three point scale. In the delay period, a rating of 3 was given if S either actively reached or leaned toward one or both wells throughout this period. A rating of 1 was given if S "left the game," i.e., either directed his attention away from the hiding game for most of the period or for more than a moment at the end of this period. A rating of 2 was made if S was oriented to the tray most of the time but occasionally looked away from the tray. In the case of 0 sec. Ss, the delay rating referred to the fractional period between the time the toy was covered and the tray was moved.

In the presentation period, a rating of 3 was made if S reached toward the cover before the tray was in front of him and took off the cover as soon as it was within reach. A rating of 2 was given if S looked toward the tray as it moved within reach and took off the cover shortly after the tray was in front of him. A rating of 1 was given if S either was not attending to the moving tray or began to remove the cover only after the tray had been in front of him for more than a couple of seconds.

The other rating made in the delay and presentation periods focused on which hiding well S gazed at (direction of gaze). Note was made of whether S gazed only at the A well, only at the B well, or looked at both, and in the latter case, the pattern of fixations.

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Reliability of the ratings--The first author trained each of the other authors to play E and observer roles simultaneously. In most cases, all ratings were made by E alone. Training was terminated and reliability was assumed to have been established when the two independent raters agreed on at least 90% of each of the four types of ratings made on two successive infants. Each E was observed at least twice by one of the other authors after he had been seeing Ss on his own, and comparable levels of agreement were found at these times. Where differences occurred, they were reconciled by discussion.

Results

The relation between delay length and $A\overline{B}$ error is presented in Table 1.

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Insert Table 1 about here

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Evidence of $A\overline{B}$ error is reported in terms of the length of the run of B trials, beginning with the first, in which S searched at A when the toy was hidden at B. Thus, if S searched at B on the first B trial, his error-run score is 0; if S searched at A on the first B trial and searched at B on the second B trial, his error-run score is 1; etc. The run score not only indicates what each S did on the first B trial, but also provides a fairly accurate index of S's performance on all 5 B trials because only 6 of 48 Ss did not follow their first successful search at B by searching at B on all the subsequent trials. As Table 1 shows, only one S in the 0 sec. condition searched at A on the first B trial (run $\geq$ 1), and the great majority of Ss in the 1, 3, and 7 sec. conditions searched at A on at least the first B trial (X^2 = 15.15, 3df, $p < .01$; comparison of 0 and 1 sec., Fisher's Exact Test, $p < .01$). Further, Ss who erred on the first B trial, tended to make a relatively long run of errors on subsequent B trials.

Piaget's position is not supported by these results. While it is of considerable interest that Ss in the 7 sec. condition were as likely to err as Ss in the 1 and 3 sec. conditions, Ss in the 0 sec. condition also should have erred if the $A\overline{B}$ phenomenon is due to a failure to register that position as opposed to forgetting it.

The 0 sec. Ss' failure to err might have been an artifact of the

procedure. When we hid the toy, we coaxed the infants into reaching toward the side of hiding. Their success may have been a result of their having been "frozen" in that direction by the movement of the tray immediately after the well was covered. In such a case, their success would have been a stage III phenomenon, a result of extending their act of reaching, and the finding would not contradict Piaget's argument.

Therefore, we observed nine more Ss under conditions in which the tray was not moved. The tray was within reach, but Ss' mothers restrained them. In five cases, the mothers restrained both the bodies and arms of Ss, and in four cases, Ss were free to reach toward but not touch the tray. One of the former five Ss erred, and one of the latter four Ss erred. Thus, the successful search of Ss in the 0 sec. condition was not a result of the procedure of sliding the tray toward S. The S appears to register the hiding of the toy at B, and something happens in the brief one second interval that follows the covering of the toy that leads the infant to err.

The ratings of attentiveness and direction of gaze on the first B trial provide some clues about the forgetting process. We will consider only Ss in the 1, 3, and 7 sec. conditions because 0 sec. Ss not only did not err but were highly attentive and tended to orient to the B well.

The attentiveness ratings will be considered first. Ss received ratings of 3 in the delay phase if they leaned or reached toward the hiding tray throughout that period and ratings of 3 in the presentation phase if they reached toward the cover before the tray was in front of them. Most Ss received a total score of 6, and most of the less attentive Ss received a total rating of 5 or 4. To evaluate attentiveness, Ss were divided into Ss who scored 6 or less than 6. In terms of this attentiveness measure, attentiveness was found to decrease with delay length ($X^2 = 9.68$, 2df, $p < .01$; comparison of 1 and 3 sec. with 7 sec., Fisher's Exact Test, $p < .05$; 1 and 3, $p > .05$). Secondly, the relation between this attentiveness measure and the likelihood of error was evaluated. While less attentive Ss were somewhat more likely to err than attentive Ss, this trend was not statistically significant (for 1, 3, and 7 sec. combined, $X^2_y = 0.62$, 1 df, $p > .75$; 1 and 3 sec. combined, Fisher's Exact Test, $p > .05$). Thus while attentiveness was related to delay length, it was not related to error, and we will return to the issue of attentiveness below.

The direction in which Ss gazed was classified in three ways. One, labeled A, refers to a pattern in which S looked to A either while the toy was in view or shortly after it was hidden and then looked at A until the tray was within reach. This is the pattern one would expect to be present from either Piaget's hypothesis or a related one that he has advanced, namely, that Ss err because the memory of their past actions overrides their present perception. A second pattern, B, refers to Ss who kept their gaze focused on B until the tray was within reach. This is a pattern one would expect if S perceived the new place of hiding and if this information was sufficient to inform him of the toy's location. The third pattern, AB, indicates a S who looked at least once to each well. Such a pattern would seem to indicate that S was localizing the object both in terms of where he had seen it hidden and where he had previously found it. In the case of less attentive Ss, their classification was based on only those gazes which were directed at one of the two hiding wells. In other words, these Ss gazed hither and yon as well as at A and B, and they were classified in terms of only those gazes that were directed to A or B.

The delay conditions were not related to direction of gaze to a statistically significant degree ($X^2 = 3.59$, 4df, $.10 > p > .25$). However, when Ss in all three non-zero delay conditions were combined, it was found that direction of gaze was related to error ($X^2 = 6.08$, 2df, $p < .05$; comparison of A and B or AB, Fisher's Exact Test, $p < .05$).

Table 2 displays this relation so that the effect of interaction between direction of gaze and attentiveness upon error can be noted.

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Insert Table 2 about here

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Inspection of Table 2 indicates that when Ss are attentive (score of 6), the Ss are very likely to err when they adopt the A pattern of gazing, but they are not likely to err if their gaze pattern is B or AB. All 7 Ss adopting the A pattern erred whereas, only 3 of 9 Ss showing the B or AB pattern erred. On the other hand, less attentive Ss (score of 6) are likely to err irrespective of a pattern of gazing. All 4 Ss manifesting the A pattern erred, and 12 of 16 Ss showing the B and AB patterns erred. Thus, two modes of erring appear to be present.

The significance of the pattern of gazing can be brought out in yet another way from the data. Previous work has shown that age is related to likelihood of error and to gaze pattern even within the limited span of ages being considered in the present study. Landers (1968) found that infants less than 9 months of age were somewhat more likely to err than infants older than 9 months. Gratch and Landers (1971), in their longitudinal study, found the pattern of gazing to shift from A to AB to B. When age trends were examined in the present study by dividing Ss in each delay condition into Ss below and above the median age of the group, younger Ss were found to be somewhat more likely to err ($X^2_y = 1.25$, 1 df, $.10 < p < .25$). But more interestingly, as Table 3 indicates, younger Ss were far more likely to adopt an A pattern of gazing than older Ss ($X^2 = 7.72$, 2df, $p < .025$;

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comparison of A and AB, Fisher's Exact Test, $p < .05$). Furthermore, as we already have seen, Ss who are attentive are most likely to err when they adopt the A pattern of gazing.

Discussion

Piaget has argued that the $A\overline{B}$ error occurs because infants fail to assimilate the information that the object is hidden in a new place. The present study does not support the strong form of Piaget's imaginative hypothesis, i.e., that the error occurs because infants fail to register the new place of hiding. There were seven infants who turned to A as the toy was still in view and was being hidden at B, suggesting that there is a way in which infants' actions at A can lead them to fail to appreciate where the object is being hidden. However, the infants in the 0 second delay condition did not commit the error, and their behavior indicates that the general reason for the $A\overline{B}$ phenomenon involves forgetting in some sense. Further, the forgetting seems to occur during the brief one second interval following the covering of the object because infants in the 1, 3, and 7 second delay conditions were all likely to make the error.

Harris (1972) has proposed that the error can be explained in terms of

proactive inhibition. He studied 10-month-old infants and found results comparable to those presented above. The infants were likely to err when they had to delay five seconds before searching, but they did not err when they could search immediately after the object was covered. To specify the nature of the error, Harris then varied the way in which the toy was covered. In his second study, the infants could search as soon as the covering was completed, and there were four possible hiding conditions: 1) toy hidden in a new well, empty well covered before the well containing the toy; 2) toy hidden in a new well, empty well covered after the well containing the toy; 3) toy hidden in the same well, empty well covered before the well containing the toy; 4) toy hidden in the same well, empty well covered after the well containing the toy. He found that infants erred only when the toy was placed in a new well, that well was covered, and then the old well was covered. He argued that the error was caused by proactive inhibition. In other words, the infants were distracted from the place where the toy was hidden by the covering of the empty well and that well cued their memory of their prior successful search.

It seems clear that Harris has specified a condition which will lead 10-month-old infants to err, but it is not at all clear that he has accounted for Piaget's $A\overline{B}$ phenomenon. First, 10-month-olds are less likely to err than 9-month-old infants. Secondly, and more importantly, it will be recalled that, in the present study, the empty well always was covered before the well containing the toy. Therefore, the factor that Harris identified as responsible for the error was not operative in the present study nor in Piaget's observations.

However, Harris' line of argument seems to be a promising way to understand the behavior of the less attentive infants in the present study. These infants were highly likely to err, and their errors were not associated with either the A, AB, or B patterns of gazing during the delay period. Thus, it seems likely that situational events occurred during the delay period which interfered with the infants' memory of the new place of hiding and some aspect of the tray in front of them cued them to search in the place where they previously had found the toy.

The same line of argument can be extended to account for the errors of attentive infants, but we would like to suggest that a modified version

of Piaget's hypothesis may provide a better account of these errors. It will be recalled that attentive infants were likely to err only when they looked to A shortly after the toy disappeared at B and then held this "point" throughout the delay period. Further, these infants tended to be younger than those attentive infants who adopted B or AB patterns of gazing and were less likely to err. From Piaget's point of view, it can be argued that the younger infants did not perceive (i.e., register) the hiding of the toy at B. Instead, it can be argued that their gaze was drawn to B and that this "motor set" was maintained for a fraction of a second. When the infants were free to search during that time (0 second condition), the "set" guided them into correct search. However, when they had to maintain the "set" for a longer period of time, they then assimilated the hiding of the toy into their scheme of finding the toy at A.

It is not clear whether this hypothesis is different from one which holds that the younger infants registered the new place of hiding but forgot it easily because this relatively weak memory was disrupted by their memory of prior successful searches. However, we advance it to point out that Piaget's approach to the phenomenon is not contradicted in any simple way by the results of present study. It is important to keep the issue open, both with respect to what is involved in the $A\overline{B}$ error and how it bears on the development of object permanence, because recent studies point out the complexity of specifying what the infant is seeking as well as where he is seeking, e.g., Bower, 1971, Evans and Gratch, 1972, Gardner, 1971, LeCompte and Gratch, 1972. For example, the studies by Evans and Gratch and LeCompte and Gratch point out that 9-month-old infants tend to have in mind the places of disappearance rather than the particular objects which disappear. Such a diffuse orientation appears to be consistent with the "motor" memory hypothesis of object localization which we have developed in order to support Piaget's hypothesis.

References

Appel, K. J. Three studies in object conceptualization: Piaget's sensorimotor stages four and five. Unpublished doctoral dissertation University of Houston, 1971.

Bower, T. G. R. The object in the world of the infant. Scientific American, 1971, 225, 30-38.

Evans, W. G., & Gratch, G. The stage IV error in Piaget's theory of object concept development: Difficulties in object conceptualization or spatial localization? Child Development, 1972, 43, 682-688.

Gardner, J. K. The development of object identity in the first six months of human infancy. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April, 1971.

Gratch, G., & Landers, W. F. Stage IV of Piaget's theory of infants' object concepts: a longitudinal study. Child Development, 1971, 42, 359-372.

Harris, P. L. Perseverative errors in search by young infants. Unpublished manuscript, Harvard, 1972.

Landers, W. F. The effects of different amounts and types of experience on infants' object concepts. Unpublished doctoral dissertation, University of Houston, 1968.

Landers, W. F. The effect of differential experience on infants' performance in a Piagetian Stage IV object-concept task. Developmental Psychology, 1971, 5, 48-54.

LeCompte, G. K., & Gratch, G. Violation of a rule as a method of diagnosing infants' levels of object concept. Child Development, 1972, 43, 385-396.

Piaget, J. The construction of reality in the child. New York: Basic, 1954.

Piaget, J. The mechanisms of perception. New York: Basic, 1969.

Footnote

This research was supported in part by USPHS grant HD03181. The authors are deeply indebted to the mothers of the infants and to Dr. Corrine Jones, director of the Well-Baby Clinic of the Hermann Hospital, for their cooperation. Thanks are also due Eric Brown and Edwin Willems for their very helpful comments on the manuscript. A shorter version of this paper was presented at the biennial meeting of the Society for Research in Child Development, Philadelphia, 1973. Requests for reprints should be sent to Gerald Gratch, Department of Psychology, University of Houston, Houston, Texas 77004.

Table 1

Relation of Delay Length and Length of Run of B Trials in Which S Searches at A: Number of Ss

Delay	Length of Run (Begins with first B trial)						
	0	1	2	3	4	≥5	T
0 Seconds	11	0	0	0	0	1	12
1 Seconds	4	1	3	0	0	4	12
3 Seconds	3	3	1	0	0	5	12
7 Seconds	3	1	0	4	1	3	12
Total Ss	21	5	4	4	1	13	48

Table 2

Relation Between Attentiveness, Pattern of Gazing, and Search on the First B Trial: Number of Ss*

	Pattern of Gazing						
	A		AB		B		Total Ss
Attentiveness	6	<6	6	<6	6	<6	
Search A	7	4	1	8	2	4	26
Search B	0	0	3	3	3	1	10
Total Ss	7	4	4	11	5	5	36

*1, 3, and 7 sec. Ss only

Table 3

Relation Between Age and Pattern of Gazing on

The First B Trial: Number of Ss*

Age	Pattern of Gazing			
	A	AB	B	Total Ss
Younger	9	4	5	18
Older	2	11	5	18
Total Ss	11	15	10	36

*1, 3, and 7 sec. Ss only